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Rock lithology role at spatial analysis of Russian Plain eastern part climatic skewness

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Abstract

To determine the influence of rock lithology of rocks on the river valley slope asymmetry the rocks of the Upper Cretaceous and Paleogene, the Tatar level of Upper Perm and Jurassic-Lower Cretaceous were studied as the most occurring in the eastern part of the Russian Plain. To exclude the influence of slope age on its steepness only small river valley were considered with the Late Pleistocene age in most cases. The geological structure of the territory was determined by medium-and large-scale geological maps, according to literature data and field observations. The sites were chosen to cover the diverse range of rocks which were classified in 5 lithological groups. The study results showed that the steep slopes of the river valleys developed in relatively strong rocks of Kazan and Tatar tiers of Upper Perm, Upper Cretaceous and Paleogene, have approximately equal slope and are markedly superior to the slope steepness composed of sand and clay rocks of the Jurassic, Lower Cretaceous, and especially Neogene-Quaternary. In addition to rock lithology content the slope steepness is also determined by river valley incision depth and their exposure.

Keywords

Climate asymmetry, River valleys, Rock composition, Rock lithology, Slope angle